

Curriculum in Biochemistry (BS Biochem)

This degree program is certified by the American Chemical Society and endorsed by the American Society for Biochemistry and Molecular Biology. It requires completion of specific biology, chemistry, mathematics, and physics courses as well as the general requirements set forth for the College of Liberal Arts and Sciences in the Undergraduate Catalog. **Students should note that not all courses are offered every term.**

Courses	Hours
MATH 180—Calculus I ^{ab}	5
MATH 181—Calculus II ^a	5
One of the following sequences in physics:	8-10
PHYS 141—General Physics I (Mechanics) (4) ^{ac}	
PHYS 142—General Physics II (Electricity and Magnetism) (4) ^{ac}	
OR	
PHYS 105—Introductory Physics I - Lecture (4) ^{ad}	
PHYS 106—Introductory Physics I - Laboratory (1) ^{ad}	
PHYS 107—Introductory Physics II - Lecture (4) ^{ad}	
PHYS 108—Introductory Physics II - Laboratory (1) ^{ad}	
BIOS 100—Biology of Cells and Organisms ^a	5
BIOS 101—Biology of Populations and Communities ^a	5
BIOS 220—Mendelian and Molecular Genetics	3
One of the following sequences in general and analytical chemistry:	14
CHEM 112—General College Chemistry I (5) ^a	
CHEM 114—General College Chemistry II (5) ^a	
CHEM 222—Analytical Chemistry (4)	
OR	
CHEM 116—Honors General Chemistry I (5) ^a	
CHEM 118—Honors General Chemistry II (5) ^a	
CHEM 222—Analytical Chemistry (4)	
CHEM 232—Organic Chemistry I	4
CHEM 233—Organic Chemistry Laboratory	1
CHEM 234—Organic Chemistry II	4
CHEM 314—Intermediate Inorganic Chemistry	4
One of the following physical chemistry sequences:	9
CHEM 340—Physical Chemistry for Biochemists I (3)	
CHEM 343—Physical Chemistry Laboratory (3) ^e	
CHEM 344—Physical Chemistry for Biochemists II (3)	
OR	
CHEM 342—Physical Chemistry I (3)	
CHEM 343—Physical Chemistry Laboratory (3) ^e	
CHEM 346—Physical Chemistry II (3)	
CHEM/BIOS 452—Biochemistry I	4
CHEM/BIOS 454—Biochemistry II	4
CHEM 455—Biochemistry Laboratory	3
Advanced Courses in Biological Sciences	6
At least two courses at the 200-level or above. One of these must be from either the area of Cell and Molecular Biology or the area of Microbiology, chosen in consultation with the faculty advisor.	

^a This course is approved for the Analyzing the Natural World General Education category.

^b MATH 180 fulfills the LAS Quantitative Reasoning requirement.

^c PHYS 141 and 142 are recommended.

^d Each of the following pairs will be considered one course in meeting the LAS General Education requirements:

PHYS 105/PHYS 106 and PHYS 107/PHYS 108.

^e CHEM 343 fulfills the LAS Writing-in-the-Discipline requirement.

Pattern of Study

Students typically take biology and general chemistry in the first year, organic chemistry in the second year, inorganic and physical chemistry in the third year, biochemistry in the fourth year and other advanced courses, supervised research, and electives in the fourth year. Taking biochemistry in the third year and physical chemistry in the fourth year is also common, but programs should be planned so that the prerequisites for physical chemistry (Chem 340/342) are completed by the mid-point of the third year, if possible. These prerequisites consist of Math 181, Chem 222 and one year of college physics. Transfer students should note that "breaking sequences" (taking one semester of a sequence at one school and the second semester at another) is not recommended.